## Release notes for ENDF/B Development n-038\_Sr\_086 evaluation



April 26, 2017

- checkr Warnings:
  - 1. A previous error halted parsing of the current section MAT=3831, MF=1, MT=451 (1): Parsing stopped

ERROR(S) FOUND IN MAT=3831, MF= 1, MT=451
SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER 240 TO 290

- checkr Errors:
  - 1. A variable is outside the allowed ENDF range MAT=3831, MF=1, MT=451 (0): Variable range

ERROR(S) FOUND IN MAT=3831, MF= 1, MT=451
MOD = 1 OUT OF RANGE 0 - 0 RECORD NUMBER 240

2. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=2, MT=151 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 2, MT=151
SECTION 2/151 NOT IN DIRECTORY RECORD NUMBER 292

3. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=3, MT=1 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 1
SECTION 3/ 1 NOT IN DIRECTORY RECORD NUMBER 382

4. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=3, MT=2 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 2
SECTION 3/ 2 NOT IN DIRECTORY RECORD NUMBER 410

5. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=3, MT=4 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 4
SECTION 3/ 4 NOT IN DIRECTORY RECORD NUMBER 438

6. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=3, MT=16 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 16
SECTION 3/ 16 NOT IN DIRECTORY RECORD NUMBER 453

7. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=3, MT=22 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 22 SECTION 3/ 22 NOT IN DIRECTORY

RECORD NUMBER

8. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 3, MT = 28 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 28 SECTION 3/ 28 NOT IN DIRECTORY

RECORD NUMBER 474

9. Missing a section in directory so your directory is messed up. This error will break everything else MAT = 3831, MF = 3, MT = 51 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 51 SECTION 3/51 NOT IN DIRECTORY

RECORD NUMBER 484

10. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 3, MT = 52 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 52 SECTION 3/ 52 NOT IN DIRECTORY

RECORD NUMBER 499

11. Missing a section in directory so your directory is messed up. This error will break everything else MAT = 3831, MF = 3, MT = 53 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 53 SECTION 3/53 NOT IN DIRECTORY

RECORD NUMBER 513

12. Missing a section in directory so your directory is messed up. This error will break everything else MAT = 3831, MF = 3, MT = 54 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 54 SECTION 3/54 NOT IN DIRECTORY

RECORD NUMBER 526

13. Missing a section in directory so your directory is messed up. This error will break everything else MAT = 3831, MF = 3, MT = 55 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 55 SECTION 3/55 NOT IN DIRECTORY

RECORD NUMBER 539

14. Missing a section in directory so your directory is messed up. This error will break everything else MAT = 3831, MF = 3, MT = 56 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 56 SECTION 3/56 NOT IN DIRECTORY

RECORD NUMBER 551

15. Missing a section in directory so your directory is messed up. This error will break everything else MAT = 3831, MF = 3, MT = 57 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 57 SECTION 3/57 NOT IN DIRECTORY

RECORD NUMBER 563

16. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 3, MT = 58 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 58 SECTION 3/58 NOT IN DIRECTORY

RECORD NUMBER 575

17. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 3, MT = 59 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 59 SECTION 3/59 NOT IN DIRECTORY

RECORD NUMBER 586

18. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 3, MT = 60 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 60 SECTION 3/ 60 NOT IN DIRECTORY

RECORD NUMBER 597

19. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 3, MT = 61 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 61 SECTION 3/61 NOT IN DIRECTORY

RECORD NUMBER

20. Missing a section in directory so your directory is messed up. This error will break everything else MAT = 3831, MF = 3, MT = 62 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 62

SECTION 3/62 NOT IN DIRECTORY

RECORD NUMBER 618

21. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 3, MT = 63 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 63 SECTION 3/63 NOT IN DIRECTORY

RECORD NUMBER 628

22. Missing a section in directory so your directory is messed up. This error will break everything else MAT = 3831, MF = 3, MT = 91 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT= 91 SECTION 3/91 NOT IN DIRECTORY

RECORD NUMBER 637

23. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 3, MT = 102 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT=102 SECTION 3/102 NOT IN DIRECTORY

RECORD NUMBER 646

24. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 3, MT = 103 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT=103 SECTION 3/103 NOT IN DIRECTORY

RECORD NUMBER 668

25. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 3, MT = 104 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT=104 SECTION 3/104 NOT IN DIRECTORY

RECORD NUMBER 682

26. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 3, MT = 105 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT=105 SECTION 3/105 NOT IN DIRECTORY

RECORD NUMBER 693

27. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 3, MT = 107 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT=107 SECTION 3/107 NOT IN DIRECTORY

RECORD NUMBER 701

28. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=3, MT=111 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 3, MT=111

SECTION 3/111 NOT IN DIRECTORY

RECORD NUMBER 716

29. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 4, MT = 2 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 2 SECTION 4/ 2 NOT IN DIRECTORY

RECORD NUMBER 727

30. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=4, MT=16 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 16 SECTION 4/ 16 NOT IN DIRECTORY

RECORD NUMBER 906

31. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=4, MT=22 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 22 SECTION 4/ 22 NOT IN DIRECTORY

RECORD NUMBER 917

32. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 4, MT = 28 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 28 SECTION 4/ 28 NOT IN DIRECTORY

RECORD NUMBER 928

33. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=4, MT=51 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 51

SECTION 4/51 NOT IN DIRECTORY

RECORD NUMBER 939

34. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=4, MT=52 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 52 SECTION 4/ 52 NOT IN DIRECTORY

RECORD NUMBER 962

35. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=4, MT=53 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 53 SECTION 4/ 53 NOT IN DIRECTORY

RECORD NUMBER 985

36. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=4, MT=54 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 54 SECTION 4/ 54 NOT IN DIRECTORY

RECORD NUMBER 1008

37. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=4, MT=55 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 55 SECTION 4/ 55 NOT IN DIRECTORY

RECORD NUMBER 1031

38. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=4, MT=56 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 56 SECTION 4/ 56 NOT IN DIRECTORY

RECORD NUMBER 1054

39. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=4, MT=57 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 57 SECTION 4/ 57 NOT IN DIRECTORY

RECORD NUMBER 1077

40. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 4, MT = 58 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 58 SECTION 4/ 58 NOT IN DIRECTORY

RECORD NUMBER 1100

41. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 4, MT = 59 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 59 SECTION 4/ 59 NOT IN DIRECTORY

RECORD NUMBER 1123

42. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 4, MT = 60 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 60 SECTION 4/ 60 NOT IN DIRECTORY

RECORD NUMBER 1146

43. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 4, MT = 61 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 61 SECTION 4/ 61 NOT IN DIRECTORY

RECORD NUMBER 1169

44. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=4, MT=62 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 62

SECTION 4/ 62 NOT IN DIRECTORY

RECORD NUMBER 1192

45. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 4, MT = 63 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 63 SECTION 4/ 63 NOT IN DIRECTORY

RECORD NUMBER 1215

46. Missing a section in directory so your directory is messed up. This error will break everything else MAT=3831, MF=4, MT=91 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 4, MT= 91 SECTION 4/ 91 NOT IN DIRECTORY

RECORD NUMBER 1238

47. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 5, MT = 16 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 5, MT= 16 SECTION 5/ 16 NOT IN DIRECTORY

RECORD NUMBER 1262

48. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 5, MT = 22 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 5, MT= 22 SECTION 5/ 22 NOT IN DIRECTORY

RECORD NUMBER 1302

49. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 5, MT = 28 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 5, MT= 28 SECTION 5/ 28 NOT IN DIRECTORY

RECORD NUMBER 1436

50. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 3831, MF = 5, MT = 91 (0): Directory (b)

ERROR(S) FOUND IN MAT=3831, MF= 5, MT= 91 SECTION 5/ 91 NOT IN DIRECTORY

RECORD NUMBER 1515

- psyche Warnings:
  - 1. Gamma width not in agreement with PSYCHE's expectations FILE 2 / SECTION 151 / ISOTOPE MASS = 86. L=0 / AT RESONANCE ENERGY 1.15100E+04 EV. THE GAMMA WIDTH 1.60000E-01 DEVIATES TOO MUCH FROM THE AVERAGE 5.56636E-01 (0): Gamma width

FILE 2

SECTION 151

ISOTOPE MASS = 86. L = 0

AT RESONANCE ENERGY 1.15100E+04 EV. THE GAMMA WIDTH 1.60000E-01 DEVIATES TOO MUCH FROM THE AV

2. Gamma width not in agreement with PSYCHE's expectations FILE 2 / SECTION 151 / ISOTOPE MASS = 86. L=0 / AT RESONANCE ENERGY 1.54500E+04 EV. THE GAMMA WIDTH 1.40000E-01 DEVIATES TOO MUCH FROM THE AVERAGE 5.56636E-01 (0): Gamma width

FILE 2

SECTION 151

ISOTOPE MASS = 86. L = 0

AT RESONANCE ENERGY 1.54500E+04 EV. THE GAMMA WIDTH 1.40000E-01 DEVIATES TOO MUCH FROM THE AV

3. Gamma width not in agreement with PSYCHE's expectations FILE 2 / SECTION 151 / ISOTOPE MASS = 86. L = 0 / AT RESONANCE ENERGY 1.84450E+04 EV. THE GAMMA WIDTH 8.00000E-02 DEVIATES TOO MUCH FROM THE AVERAGE 5.56636E-01 (0): Gamma width

FILE 2

SECTION 151

ISOTOPE MASS = 86. L = 0

AT RESONANCE ENERGY 1.84450E+04 EV. THE GAMMA WIDTH 8.00000E-02 DEVIATES TOO MUCH FROM THE AV

4. Gamma width not in agreement with PSYCHE's expectations FILE 2 / SECTION 151 / ISOTOPE MASS = 86. L = 0 / AT RESONANCE ENERGY 2.28500E+04 EV. THE GAMMA WIDTH 3.27200E+00 DEVIATES TOO MUCH FROM THE AVERAGE 5.56636E-01 (0): Gamma width

FILE 2
SECTION 151
ISOTOPE MASS = 86. L = 0

AT RESONANCE ENERGY 2.28500E+04 EV. THE GAMMA WIDTH 3.27200E+00 DEVIATES TOO MUCH FROM THE AV

5. Strength function in URR not in agreement with PSYCHE's expectations FILE 2 / SECTION 151 / ISOTOPE MASS = 86. L=0 / STRENGTH FUNCTION IS 1.36398E-04 / STRENGTH FUNCTION 1.36398E-04 / LIES OUTSIDE LIMITS 1.00000E-05 TO 1.00000E-04 (0): URR str. ftn.

FILE 2

SECTION 151

ISOTOPE MASS = 86. L = 0

STRENGTH FUNCTION IS 1.36398E-04

STRENGTH FUNCTION 1.36398E-04

... [1 more lines]

6. Strength function in URR not in agreement with PSYCHE's expectations FILE 2 / SECTION 151 / ISOTOPE MASS = 86. L = 1 / STRENGTH FUNCTION IS 3.21713E-05 / STRENGTH FUNCTION 3.21713E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

FILE 2

SECTION 151

ISOTOPE MASS = 86. L = 1

STRENGTH FUNCTION IS 3.21713E-05

STRENGTH FUNCTION 3.21713E-05

... [1 more lines]

- groupie Errors:
  - 1. Very small elastic cross section found 0: Small elastic

Multi-Group and Multi-Band Parameters from ENDF/B Data (GROUPIE 2015-2)

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ENDF/B Input and Output Data Filenames

ENDFB.IN

ENDFB.OUT

... [97 more lines]

- fudge-4.0 Warnings:
  - 1. Missing a channel with a particular angular momenta combination resonances / resolved / MultiLevel\_BreitWigner (Error # 0): missingResonanceChannel

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WARNING: Missing a channel with angular momenta combination L=0, J=1.5 and S=1.5 for "capture" WARNING: Missing a channel with angular momenta combination L=1, J=0.5 and S=1.5 for "capture"
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WARNING: Missing a channel with angular momenta combination L = 1, J = 1.5 and S = 1.5 for "capture"

WARNING: Missing a channel with angular momenta combination L = 1, J = 2.5 and S = 1.5 for "capture"

2. Cross section does not match sum of linked reaction cross sections  $crossSectionSum\ label\ 0:\ total\ (Error\ \#\ 0):\ CS\ Sum.$ 

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.25%

3. Cross section does not match sum of linked reaction cross sections  $crossSectionSum\ label\ 1:\ (z,n)\ (Error\ \#\ 0):\ CS\ Sum.$ 

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.14%

## • fudge-4.0 Errors:

1. Calculated and tabulated Q values disagree.

reaction label 15: n/multiplicity: '2'] + Sr85 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -11453260.29498291 eV vs -1.14932e7 eV!

2. Calculated and tabulated Q values disagree. reaction label 16: n + H1 + Rb85 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -9606154.481918335 eV vs -9646930. eV!

3. Calculated and tabulated Q values disagree. reaction label 17: Sr87 + gamma (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 8467215.408920288 eV vs 8428190. eV!

4. Calculated and tabulated Q values disagree. reaction label 18: n + He4 + Kr82 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -6319922.735656738 eV vs -6342980. eV!

5. Calculated and tabulated Q values disagree. reaction label 19: H1[multiplicity:'2'] + Kr85 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -9510872.263244629 eV vs -9551470. eV!

6. Calculated and tabulated Q values disagree. reaction label 20: H1 + Rb86-s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -955151.5401153564 eV vs -991935. eV!

7. Calculated and tabulated Q values disagree. reaction label 21: H2 + Rb85-s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -7381588.380981445 eV vs -7336810. eV!

8. Calculated and tabulated Q values disagree. reaction label 22: H3 + Rb84-s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -11612978.16725159 eV vs -1.16346e7 eV!

9. Calculated and tabulated Q values disagree. reaction label 23:  $He4 + Kr83\_s$  (Error # 0): Q mismatch

## • njoy2012 Warnings:

1. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

groupr...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 16 only mf4/mf5 provided

2. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

groupr...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 22 only mf4/mf5 provided

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

groupr...compute self-shielded group-averaged cross-sections (2): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 28 only mf4/mf5 provided

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!

group-...compute self-shielded group-averaged cross-sections (3): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 91 only mf4/mf5 provided